

AD-A106 054

ENVIRONMENT CONSULTANTS INC DALLAS TX
CULTURAL OVERVIEW OF THE BEAR CREEK LAKE AREA, COLORADO. (U)
AUG 80 A BOURDEAU, S GEISTER, S A SKINNER

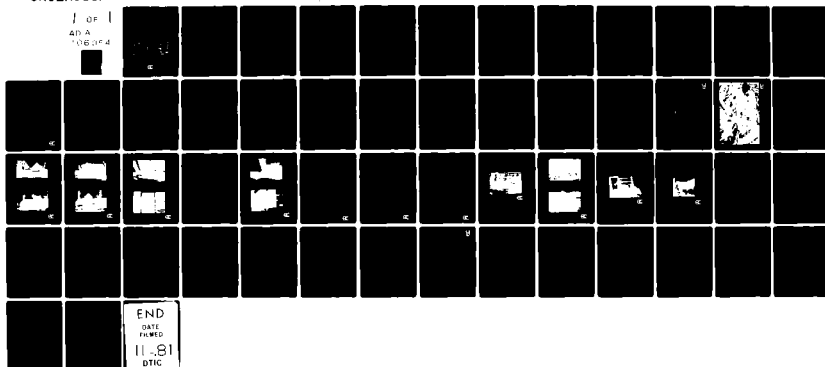
F/G 5/11

DACW45-80-C-0100

UNCLASSIFIED

NL

1 OF 1
AD A
106 054



LEVEL

4

AD A106054

CULTURAL OVERVIEW
OF THE
BEAR CREEK LAKE AREA
COLORADO

DTIC
JAN 1981

DTIC FILE COPY



ENVIRONMENT CONSULTANTS, INC.



1980 1 10 21

on approved
for public sale; its
distribution is unlimited.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER	
	AD A106054	1	
4. TITLE (and Subtitle)		5. TYPE OF REPORT & PERIOD COVERED	
Cultural Overview of the Bear Creek Lake Area, Colorado.		Final March-August 1980	
7. AUTHOR(s)		6. PERFORMING ORG. REPORT NUMBER	
Alex Bourdeau and Scott Geister under the direction of S. Alan Skinner		Environmental Consultants	
9. PERFORMING ORGANIZATION NAME AND ADDRESS		8. CONTRACT OR GRANT NUMBER(s)	
Environmental Consultants, Inc. 14325 Proton Road Dallas, TX		DACW45-80-C-0100	
11. CONTROLLING OFFICE NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
Planning Division U.S. Army Corps of Engineers, 6014 USPO & Court- house, Omaha, NE 68102		12/51	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE	
		25 Aug 1980	
		13. NUMBER OF PAGES	
		55	
		15. SECURITY CLASS. (of this report)	
		Unclassified	
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report)			
The distribution of this report is unlimited.			
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)			
The distribution of the abstract is unlimited			
18. SUPPLEMENTARY NOTES			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)			
Archaeology Historic Preservation Anthropology Historic Architecture Cultural Resource Management Colorado			
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)			
Cultural resources inventory and evaluation of the Bear Creek Lake in Jefferson County, Colorado have focused primarily on the reconnaissance and assessment of the two historic structures which are architecturally representative of houses built in the late 19th century. No prehistoric archeological resources remain in the study area, possibly due to the extensive ground surface modification resulting from the construction of Bear Creek Dam and other mining and agricultural impacts. Prehistoric and historic reconstruction of the area are provided through literature searches and informant interviews. A prehistoric model is			

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

✓ #20 (continued)

presented, resulting from background work in the region, which provides insights into the environmental factors associated with prehistoric habitation in the Front Range of the Rocky Mountains.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

**CULTURAL OVERVIEW
OF THE
BEAR CREEK LAKE AREA
COLORADO**

Accession For	
NTIS GRA&I	X
DTIC TAB	
Unannounced	
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A	

Prepared for:
U.S. Army Corps of Engineers
Omaha District, Nebraska

Contract No. DACW 45-80-C-0100

Assembled by:
Alex Bourdeau
Scott Geister

Dr. S. Alan Skinner — Principal Investigator

ENVIRONMENT CONSULTANTS, INC.
14325 Proton Road
Dallas, Texas 75234

August 25, 1980

ABSTRACT

Cultural resource inventory and evaluation of the Bear Creek Lake in Jefferson County, Colorado have focused primarily on the reconnaissance and assessment of two historic structures which are architecturally representative of houses built in the late nineteenth century. No prehistoric archaeological resources remain in the study area, possibly due to extensive ground surface modification resulting from the construction of Bear Creek Dam and other mining and agricultural impacts. Prehistoric and historic reconstructions of the area are provided through literature searches and informant interviews. A prehistoric model is presented, resulting from background work in the region, which provides insights into the environmental factors associated with prehistoric habitation in the Front Range of the Rocky Mountains.

MANAGEMENT SUMMARY

PURPOSE OF THE INVESTIGATION

In March, 1980 Environment Consultants, Inc. (ECI) conducted a cultural resources investigation in the Bear Creek Lake area under contract with the Omaha District of the U.S. Army Corps of Engineers (RFP DACW 45-80-R-0040).

The purpose of this investigation was to locate and then evaluate all cultural resources existing within the confines of the project area. The investigation involved a tripartite methodology: literature search, field survey, and personal interviews.

The literature search involved an investigation of previous research in the area as well as examination of records on specific historic or prehistoric sites. An on-the-ground survey was conducted to locate and identify any unrecorded cultural resource which might exist on undisturbed portions of the study area. Finally, personal interviews were conducted with local residents and historians, providing supplemental information regarding land use, historic settlement, and the development of social and economic patterns in the community.

CONSTRAINTS ON THE INVESTIGATION

A major constraint on the investigation was the direct result of land modification in the study area. Quarrying, mining, farming, and the construction of highways, railroads, and canals left only a small fraction of the study area in undisturbed condition. Extensive surface modifications had been performed during the construction of the Bear Creek Dam, resulting in the destruction of known, as well as potential locations for prehistoric and historic sites.

INVESTIGATION RESULTS

The on-the-ground survey of undisturbed land in the project area located no prehistoric archaeological sites. Two historic structures were encountered during the survey, the Ticen House and the Spickerman House. Both houses are architecturally

representative of late nineteenth century style houses. Both structures had undergone subsequent internal as well as external modifications, and were outfitted with modern facilities. The Ticen House appeared to have maintained its original architectural flavor in light of the modifications incurred. On the other hand, the external modifications performed on the Spickerman House appeared to detract from its original integrity.

SIGNIFICANCE OF THE RESOURCES

Upon completing an inventory of the two houses, as well as investigations regarding their historic background, it was determined that both were significant in terms of their representation in areal history. It was concluded, however, that the Ticen House was actually more representative of the social and economic development of the area, and was functionally more significant than the Spickerman House (Chapter IV). In addition, the subsequent modifications performed on the Spickerman House endangered its integrity regarding its historical significance.

RECOMMENDATIONS

In light of the previous discussion regarding the two structures, it is recommended that the Ticen House be nominated to the National Register of Historic Places. The Spickerman House will not receive similar considerations since the essence of its original historic value has not been maintained.

ACKNOWLEDGEMENTS

A large number of people assisted the authors by contributing time and information to the preparation of this report. We would like to express our appreciation for their efforts and emphasize the willingness with which all of our inquiries were answered.

Mr. Ed Rapp of Morrison, Colorado spent the better part of two days familiarizing us with the Bear Creek area and introducing us to local residents. His concern for the history of the area and the local impact of the dam project gave us a clear picture of the changes the region has undergone.

Mr. J.W. Van Gorden, a local resident for over ninety years, outlined the historical land-use activities around Bear Creek. Mr. Van Gorden was the Water Commissioner for Morrison from the 1930's until 1958. He also was employed as a ranch hand and as a miner on land within the study area. Needless to say, our conversation with Mr. Van Gorden was invaluable.

Mr. and Mrs. William Schneider of Morrison provided information on the railroad and the Morrison stone quarry. Mrs. Renee Horton and Helen Jordan of the Morrison Historical Society gave us a general overview of the history of Morrison and the historic structures in the area. Mr. Alex Rooney, Jr., a local resident, provided a history of the mining and ranching activities that occurred on his land north of the project area.

Lynnie Walker of the Colorado State Forest Service was helpful in gathering information on their building on Turkey Creek which was one of the original homes in the area.

Colette Colle and Kaaren Patterson at the Office of the State Archaeologist in Denver helped us in checking previously recorded cultural resources within the study area. Personnel at the Western Branch of the Denver Public Library, the Denver office of the Bureau of Land Management, the Jefferson County School District R-1, the Jefferson County Historical Society, the University of Denver, and the Corps of Engineers' Chatfield Reservoir office all aided in the completion of the project.

Becky Boyd of the Omaha District Office of the Corps of Engineers was very cooperative throughout the course of the project.

Dr. William E. French prepared the geology section of this report. The biology and climatological background was written by Dr. Allen R. Faust and Sally L. Grant. Susan Gramling did the drafting and Linda Holder and Chris Corgill typed the report. The report was edited by Dr. S. Alan Skinner, Toni Turner, and Hugh Ward.

To all these individuals and agencies we express our gratitude and recognition that without their efforts the report would not have been forthcoming.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Cover Page	i
Abstract	ii
Management Summary	iii
Acknowledgements	v
Table of Contents	vii
List of Figures	viii
 I. INTRODUCTION	 1
A. BACKGROUND	1
B. ENVIRONMENT	4
1. Geography	4
2. Physiography	4
3. Climate	5
4. Geology	5
5. Biology	7
 II. METHODOLOGY	 10
 III. SURVEY RESULTS	 12
A. INTRODUCTION.	12
B. TICEN HOUSE.	15
C. SPICKERMAN HOUSE	27
D. SUMMARY	28
 IV. HISTORIC OCCUPATION AT BEAR CREEK	 29
 V. ABORIGINAL OCCUPATION OF THE BEAR CREEK AREA	 33
A. PREVIOUS RESEARCH	33
B. DISCUSSION OF PREVIOUS RESEARCH	35
 VI. CONCLUSIONS AND RECOMMENDATIONS	 41
 REFERENCES CITED	 43

LIST OF FIGURES

	Page
1. Bear Creek Lake and vicinity.	2
2. Bear Creek Lake.	13
3. Aerial photograph of the project area.	14
4. Front view of the Ticen House.	16
5. West side of the Ticen House.	16
6. East side of the Ticen House.	17
7. South side of the Ticen House.	17
8. Detail of a Ticen House window frame.	18
9. Detail of Ticen House window glass.	18
10. Detail of Ticen House foundation.	20
11. Interior of the Ticen House attic.	20
12. Ground floor plan: Ticen House.	21
13. Second story floor plan: Ticen House.	22
14. Basement floor plan: Ticen House.	23
15. Basement of the Ticen House.	24
16. Concrete-on-sandstone foundation south of Ticen House.	25
17. Concrete-on-sandstone foundation; Bear Creek Dam in background.	25
18. Interior of the Ticen House showing vandalism.	26
19. West side of Spickerman House.	27

I. INTRODUCTION

A. BACKGROUND

In March, 1980, Environment Consultants, Inc. (ECI) conducted a cultural resources investigation of all Federal lands within the confines of the Bear Creek Lake area east of Morrison, Colorado (Figure 1). The purpose of this investigation was to establish the existence, location, and boundaries of cultural resources within the area (Figure 2). The investigation included an intensive survey of all undisturbed lands within the project area, as well as a literature and records search to determine the presence of prehistoric or historic cultural resources in the area.

The Bear Creek Lake project covers portions of Jefferson County, the city and county of Denver and the city of Lakewood, Colorado. The inundated area presently covers some 110 acres while the entire project area is approximately 3,169 acres. Of this acreage, approximately 60% had been previously disturbed by soil borrowing, construction of the dams, and other disruptive land use practices unrelated to the dam project. Two earth-filled embankments, one extending 5,300 ft. north from Mt. Carbon to the secondary stream terraces of Bear Creek, and a second smaller embankment extending 2,100 ft. southwest of Mt. Carbon create the dam for Bear Creek Lake.

The region in which the survey was performed is between the Denver Metropolitan area and the abruptly-rising Front Range of the Rocky Mountains. The presence of a large city near the project area greatly influenced the historic utilization of the land. The ecotone created by the contact of the mountains and the plains resulted in a varied environment that offered a greater number of resources than either of the macroenvironments to the east and west. These two factors are of major concern in any discussion of the cultural development of the Bear Creek Lake area.

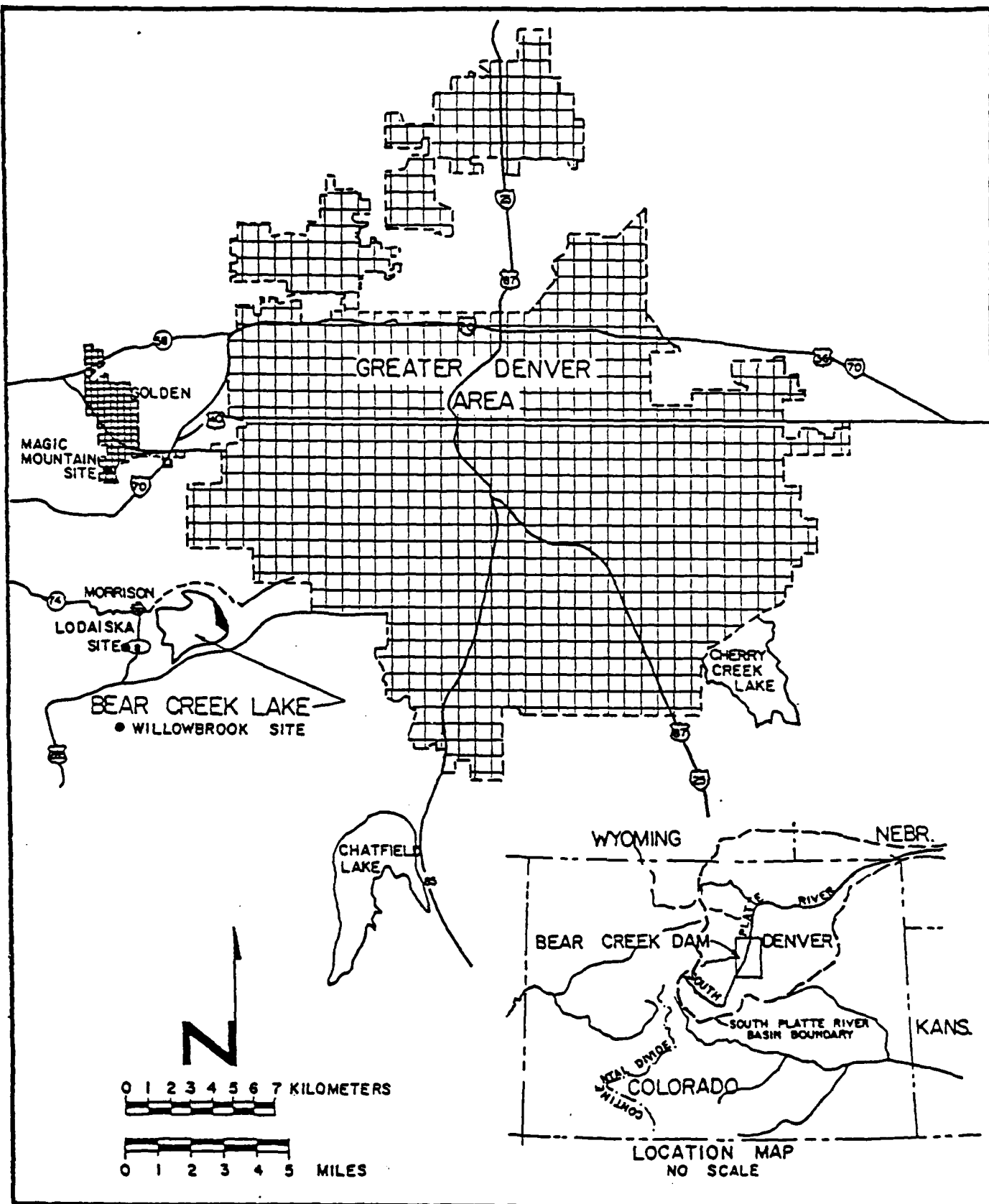


Figure 1. Plan map of Bear Creek Lake and vicinity showing locations of archaeological sites.



ECT's study was undertaken with the understanding that much of the area had already undergone extensive surface modification. This extensive disturbance may have irreversibly destroyed important physical evidence of past human activities.

Previous investigation by Arnold Withers in 1966 did not fully define the occurrence or significance of cultural resources in the area of the then-proposed Bear Creek Lake. Later, the National Park Service and Heritage, Conservation and Recreation Service initiated efforts to survey for cultural resources in the area, but no substantial investigations were performed prior to dam construction.

The relevant laws and directives under which the contract was completed include: (1) the Antiquities Act of 1906 (Public Law 59-209), (2) the Historic Sites Act of 1935 (Public Law 74-292), (3) the Historic Preservation Act of 1966 (Public Law 89-665), (4) the National Environmental Policy Act of 1969 (Public Law 91-190), (5) Executive Order 11593 for the Protection and Enhancement of the Cultural Environment (13 May 1971, 36 CFR 8921), (6) the Archeological Conservation Act of 1974 (Public Law 93-291), (7) the Advisory Council on Historic Preservation's Procedures for the Protection of Historic and Cultural Properties (36 CFR, Part 800), AR-200-1, TM 5-801-1, Historic Preservation Administration Procedures, and (8) National Register of Historic Places, 36 CFR Part 1204 (Federal Register, January 9, 1976, Nominations by States and Federal Agencies).

The Bear Creek Lake report includes:

- 1) Environmental information on the Foothills region concerning geography, physiography, geology, climate, and biotic community.
- 2) A discussion of the research methods used in gathering information on the area.
- 3) An examination of previous archaeological research in the area.
- 4) A prehistoric model discussing the development of culture in the Hogback region emphasizing the unique environment.

- 5) A discussion of the historic background including information on settlement, economic development, and surface modifications performed prior to dam construction.
- 6) Finally, the results of the investigations are presented and conclusions drawn from these results on both the prehistoric and historic components.

B. ENVIRONMENT

1. Geography

The Bear Creek Watershed is part of the South Platte River Basin. The majority of the study area, including the Bear Creek Dam Site, is located in Jefferson County, with additional portions of the watershed in Clear Creek, Park, and Arapahoe Counties.

The project lands are located west-southwest of the Denver area, and the dam site for Bear Creek Lake is approximately 5 miles (3 km) southwest of Denver and 3 miles (1.8 km) east of Morrison. Bear Creek Lake is on Bear Creek about 8 miles (4.8 km) upstream from its confluence with the South Platte River (USCOE 1977).

2. Physiography

The project area is situated on the extreme western edge of the Great Plains, near what has been defined as the Central Foothills Region of the Southern Rocky Mountain Province. The dominant physiographic feature is a steep hogback of resistant Dakota sandstone which runs parallel to the igneous foothills. Differential erosion of sedimentary layers formed a valley that averages roughly 2 miles (1.2 km) in width between the Hogback and the Front Range (Irwin-Williams and Irwin 1966:5-6). Streams flowing out of the Front Range collect in this inter-ridge valley. Major streams cut through the Hogback and flow out onto the plains. The topography is characterized generally by gently rolling, eastward-sloping plains cut by north- and east-flowing drainages. The South Platte River Basin flows north to south and creates a broad, gentle valley with gravel-capped terraces (Martin 1976:1).

3. Climate

The climate of the Great Plains zone generally is semi-arid; however, the climate of the land immediately adjacent to the foothills is somewhat modified from that of the plains (Clark et al. n.d:4). The Front Range of the Rocky Mountains, in the vicinity of the Bear Creek Project, experiences light rainfall, low relative humidity, a wide daily temperature range, a high percentage of sunshine and moderately high winds. Winds prevail from the west, and gusts have been recorded in excess of 160 km/h (Mutel 1976:12; Clark et al. n.d:4). Temperatures of 35°C or higher are common in the summer. The lowest temperatures observed have ranged from -35°C to -40°C. Mean annual temperature is 10°C and mean high and low temperatures are 18°C and 1°C respectively. The mean annual precipitation averages approximately 38 centimeters. Over 70 percent of the annual precipitation falls in the 6-month period from April through September, most of it from summer thunderstorms. Winter snowfall averages from 90 to 150 cm (USCOE 1977). On the average, the area experiences over 150 frost-free days per year (Mutel 1976:29).

4. Geology

The area is underlain by sedimentary rocks of Upper Cretaceous and lower Tertiary age. These strata were upthrust during the formation of the Front Range and now dip steeply to the east in this area, although they are essentially level-lying under the high plains a few miles to the east.

The oldest rocks to outcrop in the project area are the limestones and shales of the Niobrara formation of upper Cretaceous age, which are found in the extreme western part of the area. To the east is the overlying Pierre shale which contains layers of limestone and sandstone, as well as beds of bentonite clay. Total thickness of this formation is over 6,000 feet (1,818 meters). The overlying Fox Hills and Laramie formations consist of about 700 feet (212 m) of sandstones and siltstones with sub-bituminous coal beds up to 8 feet (2.4 m) thick. Following deposition of these strata, there was a period of uplift and erosion which interrupted the sequence of sedimentation. Subsequently, the sandstones, siltstones, and shales of the Arapahoe formation and the conglomerates, sandstones, and mudflow deposits of the Denver formation added another 1300 feet (394 m) to the thickness of the sediment column.

All of these formations contain plant and animal fossils, including in some levels, dinosaur bones.

Deposition of the sediments which are now the bedrock of the area was followed by uplift, tilting, and erosion to produce the land surface. During the Pleistocene time, the activity of glaciers in the nearby mountains resulted in deposition of alluvial sands and gravels at several levels. These form much of the present subsoil cover of the area. The oldest alluvium of the area is the Verdos gravels and clays which cover the top of Mount Carbon. The central part of the area, between the creeks, is covered by the Louviers alluvium which contains boulders up to 6 feet (1.8 m) in diameter. This deposition occurred as a result of a torrential flood which caused the diversion of Turkey Creek into the Bear Creek drainage system. The valley bottoms of the two creeks contain more recent alluvial materials of the Piney and post-Piney deposits (Scott 1972).

In historic times, many of the geological resources in the area have been utilized. Most of these activities have been centered around surface quarries although some deep mining has occurred. Considerable amounts of sand and gravel were extracted from the area prior to reservoir construction. Supplies came from the upland terrace deposits on Mount Carbon, as well as from the flood plain of the two streams. There are numerous large and small gravel pits throughout the area.

The shale deposits of the Cretaceous sediments are not highly lithified and are mined as a source of clay. There are clay pits near the dam site and in areas adjacent to the project. Products made from the clay include brick, refractory tile, sewer pipe, and lightweight aggregate.

In the past, several small coal mines operated in the area. Production was from seams of sub-bituminous coal in the Laramie formation. The exact extent of the workings is not known. However, some of the drifts are located under and adjacent to the dam and reservoir. There has not been any significant coal production for several decades (USCOE 1980). Oil seeps and asphalt deposits have been known near the area for over a century. During the past few decades, several wells have been drilled in the vicinity of the reservoir. At least one well produced several thousand barrels of crude oil; however, there is no longer any oil or gas production in the area (USCOE 1980).

5. Biology

Although the area of study is characterized physiographically as part of the Great Plains, the flora and fauna reflect an interdigitation between the western Mountains and the eastern Plains zones, especially near the foothills. The faunal zone of the foothills region is referred to as the "Transition Zone" where both boreal and austral mammals are represented (Irwin-Williams and Irwin 1966:12). The floral biome is designated as the "Mountain Shrub Subdivision" of the Mountain and Plateau Area (Irwin and Irwin 1959:3).

Because of differences in elevation throughout the area, there is a wide variation in the vegetation pattern and, consequently, a wide diversity in wildlife. The six separate and distinct ecosystems which exist are described in the following paragraphs, as modified from the USCOE 1980 Design Memorandum for the Bear Creek Lake.

a. Native Grassland

This ecosystem is located in the upper elevations of the Bear Creek and Turkey Creek drainage areas. Vegetation species consist mainly of short grasses, although tall-grass species are starting to reappear since grazing activities have been terminated. The system is expected to remain virtually unchanged in the future with the exception that more varieties of tall grasses are expected to reappear. The north-facing slopes within this ecosystem support primarily mountain mahogany. Wildlife species that inhabit the area include mice, hawks, ground-dwelling sparrows, meadowlarks, prairie dogs, coyotes, and kestrels.

b. Riparian Streamside Including Gravel Mining Ponds

The immediate river bottom vegetation consists primarily of cottonwood trees interspersed with a few other species of trees. There are no unusual vegetative characteristics that are specific to the Bear Creek Lake area. Because of periodic flooding, it is expected that much of the vegetation is in a continual successional pattern. In other words, none of the vegetation has reached its potential in species composition due to this periodic flooding and subsequent reestablishment. Several cattail marshes are present along Bear and Turkey Creeks. Wildlife present in this

ecosystem includes beavers, a large variety of songbirds, rabbits, pheasants, and cold-water game fish.

c. Ravines and Intermittent Water Courses

The ravines which occupy the northern boundaries of the Bear Creek Lake project area offer quite a diversity of vegetation. This diversity is not specifically unique to this locality; however, this particular ecosystem generally is associated with larger animals. Many of the ravines have been heavily grazed by livestock in the past. Since removal of domestic livestock from the area, some of the vegetation is changing drastically. Wildlife known to be in the area includes deer, coyotes, rabbits, and songbirds.

d. Agriculture or Cultivated Areas

A small number of areas within the flood plain of Turkey Creek and the high bench between Bear and Turkey Creeks were used for cultivation of crops. Principal crops were small grains and alfalfa. When construction began, agricultural practices had not been permitted and the area now supports many varieties of weeds. At the present time, wildlife in this area includes mice, coyotes, moles, gophers, raptors, snakes, and a variety of insects.

e. Water Areas (Large Bodies)

Three relatively large water areas exist in the project area. These include two Soda Lakes and Bear Creek Lake which is impounded by the dam. Bear Creek Lake was recently formed and the ecosystem surrounding the lake shore is still developing. The Soda Lakes have minimal vegetation along the shoreline with no trees or shrubs. Wildlife species include ducks, great blue herons, shorebirds, geese, and a variety of warm-water fish. Bear Creek Lake will offer similar habitat except fish species will be cold-water varieties.

f. Foothill - Mountainside

This ecosystem's topography is rolling to steep with short-grass ground cover; patches of piñon pine and juniper are present at the upper elevations. Wildlife known to be in the area includes lizards, snakes, chipmunks, jays, mule deer, and raptors.

In addition, there are several areas which are considered to be ecologically sensitive. One such area contains a colony of prairie dogs, while another area provides suitable habitat for mountain lion, black bear, and various birds of prey. This has been confirmed by recent sightings of these animals. Mining activities in the flood plain have produced small ponds which have introduced aquatic habitat, and such species of wildlife as waterfowl and beavers. In general, wildlife has returned to this area in significant numbers since domestic livestock grazing has been discontinued.

II. METHODOLOGY

Three methods were used for gathering information on the cultural resources of the Bear Creek dam and lake area. These included an inspection of records of archaeological sites in and around the area, interviews with local residents familiar with the area's history, and an on-the-ground survey of the undisturbed portions of the study area. In addition, the regional literature on historic and prehistoric settlement patterns was consulted, providing a perspective on problems in cultural resource investigations which might arise from past and present environmental and cultural conditions.

Literature repositories visited were the library of the Institute for the Study of Earth and Man at Southern Methodist University, the office of the Colorado State Archaeologist, the Western Branch of the Denver Public Library, the University of Colorado Library in Boulder, the Jefferson County Courthouse, and the Denver office of the Bureau of Land Management. In conducting the literature search, the primary concern was to locate and identify specific historic or prehistoric sites and activities which occurred in the study area.

Contact with local historians and residents was initiated in order to supplement information acquired during the literature search. These conversations provided a great deal more information than the written record. The informants clarified points on land use, dates of various activities, and the locations and functions of buildings removed prior to the study. In general, the local residents showed a great deal of interest in the investigation and were pleased that it had been initiated.

The survey itself covered areas determined to have been minimally impacted by construction. Sweeps through these areas were conducted at intervals of 10 to 20 m depending on surface conditions. Much of the undisturbed portion of the reservoir, particularly areas adjacent to Bear and Turkey Creeks and their seasonal drainages, was heavily vegetated. These areas were inspected as closely as possible. One potential problem noted during the survey was the presence of several stock ponds along the seasonal drainages. Siltation in these ponds may have concealed cultural

materials. All cut banks along Turkey and Bear Creeks were inspected, as well as all bare ground and rodent intrusions.

Included in the on-the-ground survey was an inspection of the Ticen and Spickerman Houses. The majority of the time spent on investigating these two structures was concentrated at the Ticen House. Photographs and floor plans of the house were prepared, and information on construction methods and structural changes was collected. The Spickerman House is presently occupied by the State of Colorado Forest Service, which is performing revegetation programs within the reservoir area.

III. SURVEY RESULTS

A. INTRODUCTION

From a prehistorian's standpoint the survey was singularly disappointing. The degree of surface modification associated with dam construction (Figure 2), as well as that resulting from previous quarrying, farming, mining, and canal and road building left very little of the project area in pristine condition. The terrace between Bear Creek and Turkey Creek was thought to be an excellent location for prehistoric occupation. Unfortunately, the junction of the two streams, as well as some 110 acres upstream from the dam were inundated. In addition, the terrace had been extensively quarried by the Peter Kiewit Company (USCOE 1980) and by the Corps of Engineers. Aerial photographs of the project area reveal disturbances all along the terrace from where Bear and Turkey Creeks exit the Hogback to their junction (Figure 3).

Along the creeks, evidence of recent erosion and deposition was apparent. Sites once located in the drainages probably would not have been preserved for long. Inspection of the secondary terraces north of Bear Creek revealed no artifacts. A recently active prairie dog colony provided excellent subsurface exposure. However, no cultural materials were found in the backdirt from their excavations.

Several intermittent drainages north of Bear Creek were undisturbed by dam construction. Stock ponds across these drainages have caused considerable siltation. However, it is unlikely that sites occur within the drainages due to the steepness of their banks.

East of the dam, a relatively undisturbed tract of land around the old Meadowglen Ranch (Figure 2) was investigated. This area contains exotic trees and the remnants of a stone foundation apparently associated with the ranch house, which had been removed prior to the survey. These remains reflected no valuable information concerning the house itself other than indicating the basic shape of the structure. Testing was not deemed necessary, as the potential for further research was not present. No prehistoric sites were found in this area.

The four canals described in Chapter IV were all located during the survey (Figure 2). The original condition of the canals has been altered by modern maintenance



Figure 3. Aerial photograph of the project area showing disturbance between Bear and Turkey Creeks.

procedures. Backhoes have been used to clear debris from the canals; this process incurred modifications on the canals, and has resulted in the development of substantial levees along their courses. At points subject to erosion, the ditches were reinforced by the addition of concrete abutments.

B. TICEN HOUSE

Two historic structures were still standing in the project area at the time of the survey. The architecture of the houses is representative of the style existing in the Bear Creek area during the late nineteenth century, although the styles do not reflect any specific architectural mode. The first structure visited, known as the Peterson or Ticen House, was originally ell-shaped and is of balloon frame construction (Figure 4). Architecturally, the floor plan layout resembles a modified New England style farm house. The western wing of the house has two stories and is oriented to the north (Figure 5). Extending from this wing and forming the ell is a single-story portion of the house which contains a kitchen (Figure 6). Two additions were added to the house in the twentieth century: a back porch and a room positioned between the original wings (Figures 4 and 7). Extending out from the front of the house is a covered porch with decorative posts at each corner (Figure 4).

There were originally three entrances to the house. The first was at the front of the west wing. Another was on the south side of the east wing which opened into the kitchen. To the north of and below the kitchen door were a staircase and door leading into the basement. Both the kitchen and basement doors are now enclosed by the back porch addition, which houses the third entrance.

Construction of the two additions eliminated several windows; however, the three windows above and to either side of the front entrance appear to be original equipment, as evidenced by irregularities in the glass and wooden-peg construction in the frames (Figures 8 and 9). The windows are of the six-over-six variety. The window lintels above the frames are slightly gabled (Figure 4).

The interior of the house has been altered substantially by the two additions and by replacement of the plaster-on-lath wall covering with beaver board in some of the rooms. The original window casings in the west wall have been replaced with aluminum frames. Electrical wiring and iron and copper plumbing have been added to



Figure 4. Front view of the Ticen House showing decorative cornice and windows. View is to the south.

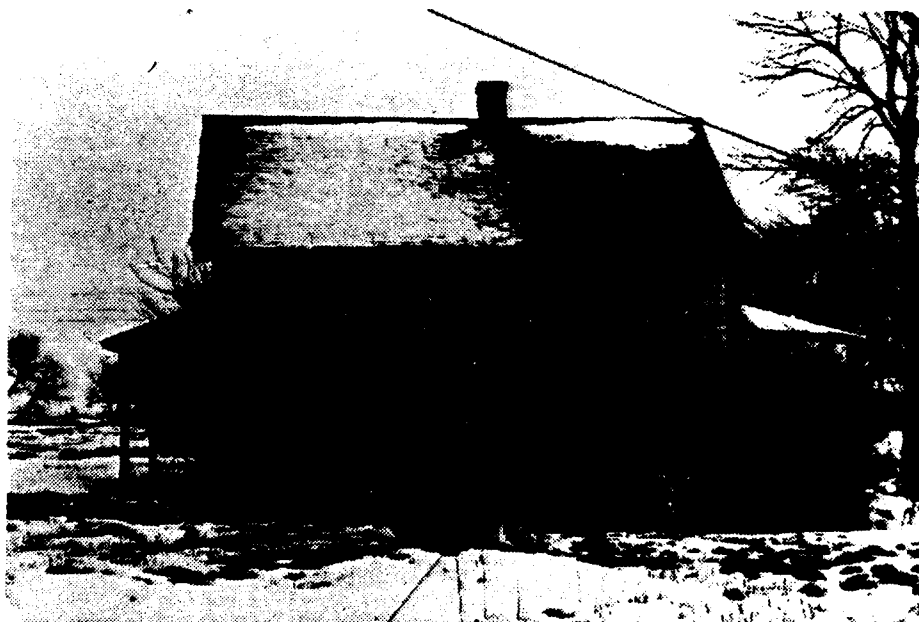


Figure 5. West side of the Ticen House showing front porch.





Figure 6. East side of the Ticen House showing additions.



Figure 7. South side of the Ticen House.





Figure 8. Detail of the Ticen House window frame on eastern side. Note wooden peg construction.



Figure 9. Detail of the Ticen House front window glass showing irregularities.



the house. In addition, there is a modern electrical cooking stove and a relatively new porcelain bath tub.

The foundation of the house is constructed of unpatterned mortared sandstone; the structure's floor joists rest directly on the stone. At various points wooden wedges have been driven between the joist and the stone foundation to level the structure (Figure 10). The flush-and-nail method was employed for the construction of the corner joints.

The house has two chimneys, both of red brick. The chimney above the east wing originates in the kitchen and the one above the west wing in the basement. The brick used in the west wing chimney above the main floor appears somewhat older than the chimney brick in the basement, indicating that the latter is an addition. Flush with the gable of the roof is a decorative wooden cornice on the north and west facing eaves. The cornice is fastened to the building with cut nails, a good indication that it is original (Fontana 1965:89).

The roof, gabled at approximately 43 degrees, is covered with pointed wooden shingles laid over wide wooden strips, that are in turn fastened to rough cut, two-by-six rafters (Figure 11). The roof is in poor condition, having been damaged by wind and frost. The siding of the house is cedar shiplap, fastened with wire cut nails. The nails indicate the original siding may have been replaced.

There are four rooms on the ground floor (Figure 12). The living room occupies the entire west wing, except for the extreme southern end which houses a bathroom. In the addition between the wings is a room that apparently functioned as a bedroom. The kitchen is in the east wing, and there is a crawl space under the kitchen that opens into the basement. Against the south wall of the kitchen is a brick chimney that apparently vented a wood burning stove.

On the second floor of the west wing are two rooms divided by a staircase that originates in the kitchen (Figure 13.) The ceilings of the two rooms are directly inside the gabled roof, giving them a steeply angled appearance. The walls of the northern room are of plywood panelling, obviously a recent addition.

The basement of the house extends under the west wing (Figure 14). A small storage room was built in the southwest corner of the basement. The basement walls are of



Figure 10. Detail of the Ticen House foundation.

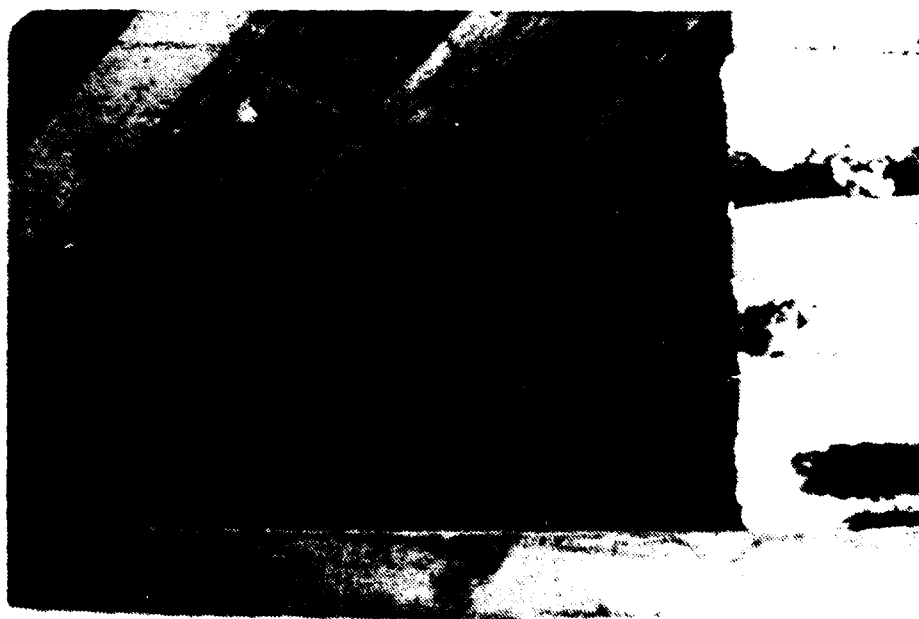


Figure 11. Interior of the Ticen House attic illustrating roofing technique. View is to the north.





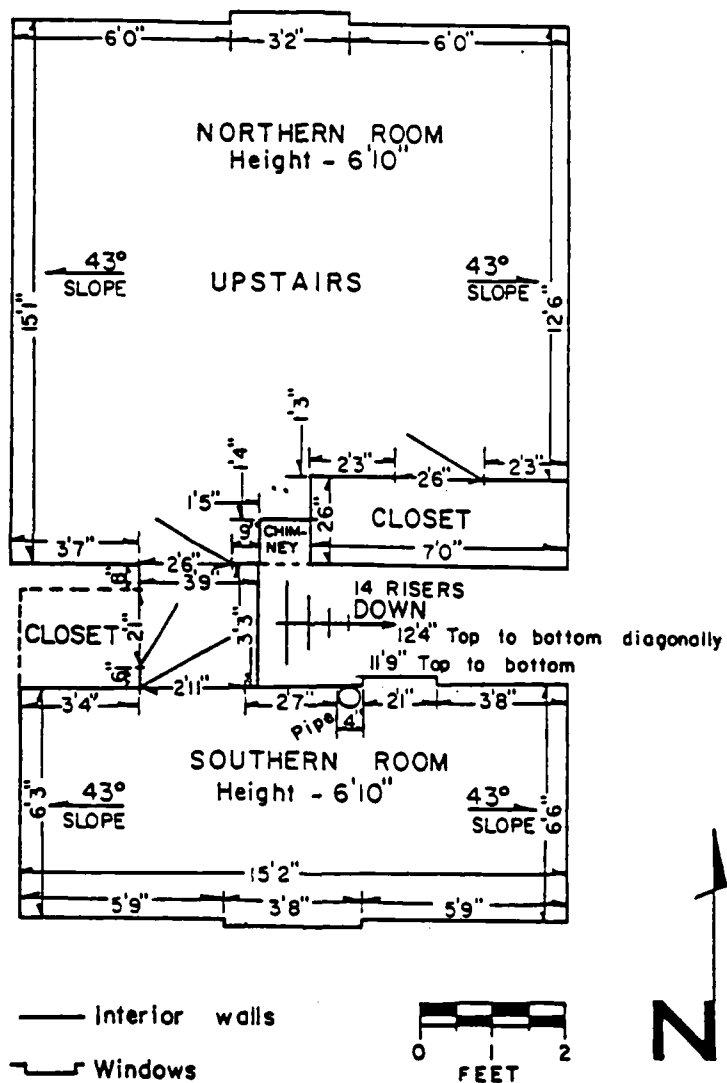


Figure 13. Second story floor plan of the Ticen House.





the same stone as the foundation and are mortared (Figure 15). As previously mentioned, a fairly modern brick chimney is centered in the basement. The floor of the basement is also of sandstone. Due to the extensive weathering, it was not possible to determine if it had been mortared in place.



Figure 15. Basement of the Ticen House showing stone and mortar along north wall.



To the north and west of the Ticen House are two structures, apparently homes. At the time of the survey neither house was occupied. A rapid inspection of these structures determined that they are of recent construction. Immediately west of the house is a concrete block structure that appears to have been a recently built well house. South of the Ticen House across the Pioneer Union ditch were two concrete-on-sandstone slabs. These slabs were apparently foundations for two small outbuildings (Figures 16 and 17).



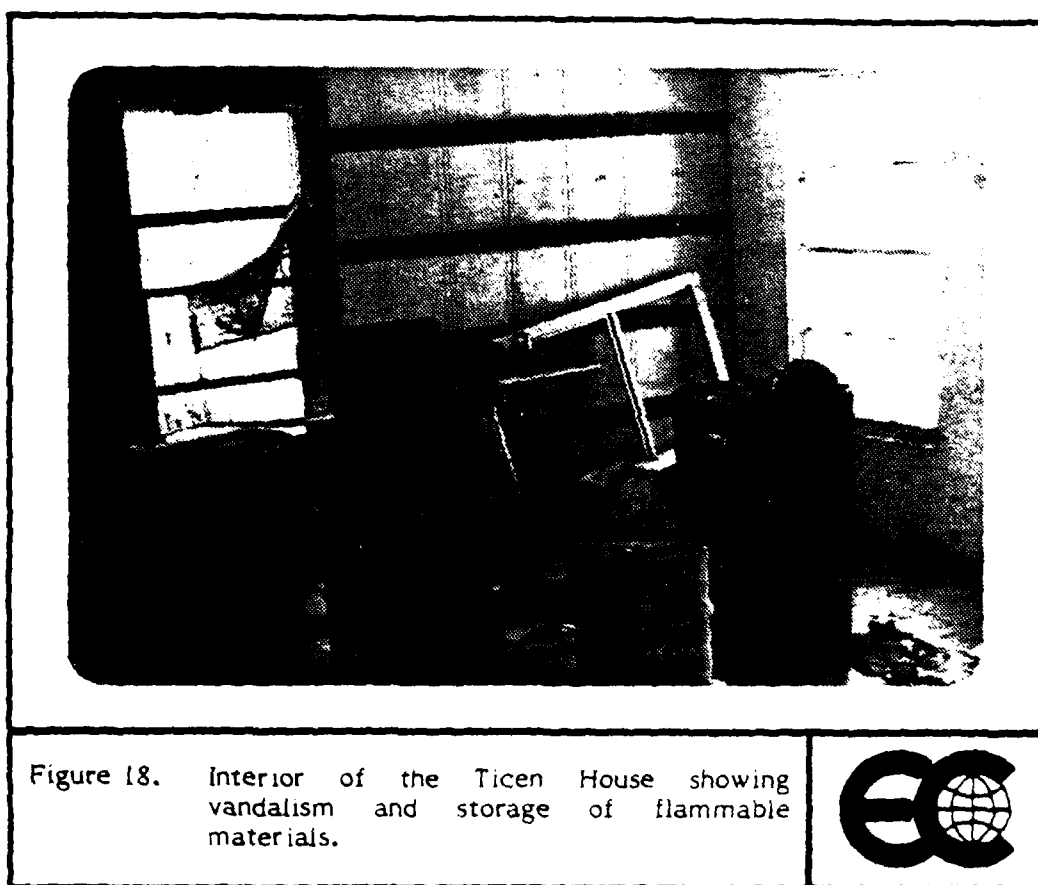
Figure 16. Concrete-on-sandstone foundation south of the Ticen House.
View is to the northeast.



Figure 17. Concrete-on-sandstone foundation south of the Ticen House,
facing southeast. Note Bear Creek Dam in background.



The interior of the Ticen House has been extensively vandalized. Many window panes have been broken, graffiti covers the walls, and assorted flammable chemical containers are scattered throughout the house (Figure 18). The possibility of destruction by fire is ever-present. In addition, sections of the interior walls have been torn off, exposing the superstructure. At the present rate of deterioration the house will soon become unsalvageable.



C. SPICKERMAN HOUSE

The Spickerman House on Turkey Creek is a stone structure with a painted sand-tempered stucco covering the exterior; the stucco appears to be a relatively new addition. The house has two stories and was originally T-shaped with wings extending generally east, west and south. A small building that acted as a wash house was added to the south wing sometime after completion of the main building. The foundation and basement of the house are of the same stone as used at the Ticen House.



Figure 19. West side of the Spickerman House, facing north. Note exterior stucco.



There are four entrances to the building, one at the junction of the west and south wings and a second in the north wall of the wash house. The third is a covered and sunken doorway leading into the basement below the south wall of the east wing. Lastly, a door opens into the east wall of the east wing.

The roof is of asphalt tile and is gabled at approximately 45 degrees over the west and south wings. It is somewhat steeper over the east wing, which is narrower than the other two.

The wash house is sunken approximately 2 feet below the ground surface. It is made of the same materials as the original house and has the same type of roof. The basement extends under the east and west wings and has been divided into several small storage rooms. All exposed wooden joints in the basement were fastened with square cut nails.

On the main floor of the building are five rooms: a kitchen, bathroom, and pantry in the west wing, a living room in the east wing, and a bedroom in the south wing. On the second floor are three bedrooms. The house has two chimneys, one originating in the washroom and the other in the south wing. All of the windows in the house are relatively modern, indicating that the original windows and frames have been replaced.

West of the house is a large, relatively modern utility shed, while east of the house is a series of badly damaged chicken coops. Across the Harriman Canal is a large barn. The Spickerman House and outbuildings are presently occupied by the Colorado State Forest Service, which is in the process of revegetating borrow areas used in construction of the Bear Creek Dam.

D. SUMMARY

The two described structures were the only significant cultural resources encountered during the survey. No prehistoric sites or artifacts were found. The absence of evidence for prehistoric activities does not preclude the possibility that aboriginal peoples inhabited the area. However, the exploitative activities of more recent inhabitants have erased the record of aboriginal culture and altered the landscape significantly.

IV. HISTORIC OCCUPATION AT BEAR CREEK

In 1858, George A. Jackson (1836-1897), a trapper and gold miner, came up what was then known as Lupton's Fork from the South Platte River (Hall 1891). Lupton's Fork was later renamed Bear Creek. In the same year, Jackson made a major gold strike at Chicago Creek near Colorado Springs, Colorado. His diary contains the first description of the study area (Jackson 1929); however, as his major concern was with the area's potential for gold, his journal contained very little description of the physical environment.

The next known activity to occur in the Bear Creek area was the construction of several canals or ditches to supply water for the area around the rapidly growing city of Denver. The first of the canals (Harriman) was built around 1860 (Van Gorden 1980). This canal originates on Bear Creek where the stream exits the Hogback, and trends southeasterly until it leaves the study area south of Mount Carbon. Within the next three years, two other canals were dug, the Warrior and the Pioneer Union ditches. Both canals paralleled Bear Creek; the Pioneer Union to the north and the Warrior to the south. The last water supply ditch, built in 1880, was the Ward Canal which follows the upper terraces north of Bear Creek (Figure 2). All four canals still exist, although only the Harriman carries water. The Ward, Pioneer Union, and Warrior Canals were all interrupted by construction of Bear Creek Dam. Until that time, all of the ditches were maintained on a regular basis (Van Gorden 1980). Until the advent of backhoes, a horse-drawn skidder or skimmer was used regularly to clear sediment from the canals. The skidder was pulled along the bottoms of the ditches until full and then emptied along the sides of the ditch. Often, the removed sand and gravel was used to reinforce the canals. In addition to the water supply canals, several local irrigation ditches were dug in the study area (Rapp, personal communication). The most notable of these was the Cycler ditch (Van Gorden 1980) shown in Figure 2.

On December 29, 1863, the first recorded acquisition of land was made in the study area. Much of the land was under the control of the United States and was distributed by the Government through six different methods: cash sales, homestead claims, grants for military service, railroad grants, timber claims, and forest exchanges. Often, the name which appears on the title is not that of the person who took control

of the land. Military grants in particular were passed down through generations, changed hands through marriage, or were signed over to other parties. However, the information is significant because it provides a clear picture of how and when land was acquired in Jefferson County during the late nineteenth century.

During the period of land acquisition, several small houses, including at least one log cabin, were built in the area. The cabin was known as the Van Higgins House (Patterson, personal communication), and was illegally removed from the impact area during construction of the dam. Two structures remain in the study area that clearly represent the historic development of the Bear Creek area. These two structures, known as the Ticen and Spickerman Houses, were built in the last quarter on the nineteenth century. Both houses are in close proximity to the water supply canals previously mentioned.

The Ticen House rests within 10 meters of the Pioneer Union ditch. The house has also been known as the Peterson House, the Morrison Farm and Dairy, and as the Kendalvue Balanced Farm (Horton 1980:2). The house lot was originally deeded to Joseph Rist in 1865 through a military land grant for Elijah Parker, a Revolutionary War veteran.

In 1883, Levi and Eunice Debrust obtained the land and probably built the house. In 1887 the Debrust's purchased an oil lease on all of the land except the 20 acres around the house. After 1899, A.C. Phelps purchased the land and later leased the house to the Peterson family, from which the ranch took its name. In 1921, the house became associated with the Morrison Farm and Dairy, but by 1927, the land was known as the Kendalvue Balanced Farm. Around the middle of the twentieth century, Fred Ticen married into the Peterson family and took up residence at the house. Since that time the house has been known as the Ticen House.

The Spickerman House is located at the intersection of the Harriman Canal and Turkey Creek. The Spickerman House has not had the associated diversity of owners or activities as has the Ticen House. Andrew Spickerman bought the house lot from the Federal Government on September 20, 1870. Mr. Spickerman then filed a homestead claim on land south of Turkey Creek on December 15, 1870. From that time until just recently the house was associated with raising fodder crops, as the bottom land on Turkey Creek is ideal for alfalfa and hay. In the early 1920's the house and the land were purchased by the Palaro family who have operated a major dairy in the area since

that time. Recently, some of the land east of the house along Turkey Creek was quarried for gravel (USCOE 1980).

During the last quarter of the nineteenth century the Bear Creek area underwent many changes. Coal, oil, clay, limestone, and gravel were found and exploited. A coal seam exposed on Mount Carbon was mined from the 1890s until the 1920s (Horton 1980). Oil leases were obtained beginning in 1887 (Horton 1980).

In the early 1870s, the Morrison Stone Lime and Town Company began quarrying limestone and sandstone near the study area. The materials were used in the production of cement and red, white, and blue sandstone building blocks (Horton 1980). It is possible that this company tested and quarried in the study area although no records of activity were located.

In 1872, the Denver, South Park, and Pacific Railroad was organized and built between Denver and Morrison. The right-of-way ran immediately south of Bear Creek over what is now part of the project area. Of narrow gauge construction, this line opened in 1874 (Horton 1975:3). The primary purpose of the railroad was to provide transportation from the Morrison Stone, Lime and Town Company's five quarries in Morrison (1975:2). However, the railroad also served to transport agricultural products and timber to Denver (1975:2-3). In addition, the railroad transported tourists to the Red Rocks area north of Morrison. The railroad was reorganized as the Colorado and Southern before 1899 (Willits Farm map 1899) and made its final run in 1933 (Horton 1980 and Schneider, personal communication).

In 1910 the Morrison Terra Cotta Works was established at the base of Mt. Carbon (Van Gorden 1980). The plant was owned and operated by the Robinson Brick and Tile Company of Denver, Colorado. The clay for the brick manufactured at the plant was obtained from near the summit of Mt. Carbon. According to Mr. Van Gorden, who worked as an employee for the company, horse drawn skimmers were used to remove the topsoil from the quarry and excavate the clay. The bricks manufactured were of high quality; however, the cost of transporting bricks to Denver forced closing of the plant in 1912 (Van Gorden 1980). The history of the building after operations closed down is not available, and the site of the building is now under Bear Creek Lake. Associated with the Terra Cotta Works was a railroad station (Denver area map 1915). A railroad spur from the Colorado and Southern was built to the station to provide

access to the brick works (Van Gorden 1980). Around the Mt. Carbon school, the Terra Cotta plant, and the railroad station, the unincorporated town of Cowan appeared (Denver area map 1915). Apparently the town was never organized and was forgotten following closure of the brick plant and the school.

Throughout the last quarter of the nineteenth century and into the twentieth, the land in the area was used for many different agricultural enterprises. Horses, cattle, turkeys, and chickens have all been raised at various times. Farming was less important than ranching and primarily was involved with raising fodder crops (e.g., hay and alfalfa). Many of the residents established small orchards near their homes; however, none became commercially significant (Rapp, personal communication).

The Bear Creek area also served as what may be termed a proto-suburb. Many of the people who had homes in the area did not make their living from the land. Many worked in Denver (Van Gorden 1980; Rooney, personal communication). However, these land owners often leased or rented sections of land to people who did raise stock or produce crops. As a result, the names of houses and ranches became confused. Often, there was no official record of agreements. In some instances, people were allowed to build homes on land in exchange for work (Horton 1980).

The most important agricultural enterprises established in the area were several dairy farms. The earliest was the Morrison Farm Dairy established in 1921 (Horton 1980). Dairies operated by the Palaro family near the Soda Lakes functioned until just recently (Rapp, personal communication). The milk and other products produced were sold primarily in Denver (Horton, personal communication).

Very recently the Pleistocene gravels on the terrace between Bear Creek and Turkey Creek have been intensively quarried. In addition, gravel quarrying has occurred south of Turkey Creek.

In conclusion, the Bear Creek area historically represents land use activity that may be typical of rural environments adjacent to large metropolitan areas. The water, soils, rock, and, indirectly, the vegetation have all been exploited for use in Denver. The area's aesthetic qualities provided a pleasant living environment for people employed in the city. The construction of the Bear Creek Dam is the most recent impact that Denver has had on the area.

V. ABORIGINAL OCCUPATION OF THE BEAR CREEK AREA

A. PREVIOUS RESEARCH

The Front Range has been the subject of archaeological investigation for a least half a century. E.B. Renaud conducted surveys along the Eastern Foothills for the University of Denver as early as the 1930s (1931, 1933). Renaud's work and that of other archaeologists such as Leach (1966), Martin (1976), Irwin-Williams and Irwin (1966), and Nelson (1971), documented many of the sites in the Morrison area. In addition, Windmiller and Eddy conducted a major survey of the Two Forks Dam and Reservoir in 1974. Their study includes a synopsis of previous work performed in the area and a discussion of prehistoric land use.

The majority of the sites recorded during these surveys were open lithic scatters containing a few chipped stone tools, ground stone artifacts, and quartzite debitage. Recovered materials indicated influences from three different cultural groups: the Desert and Great Basin cultures to the west and the High Plains cultures to the east (Irwin-Williams and Irwin 1966). Information obtained from excavations of stratified sites in the area, such as Willowbrook (Leach 1966), LoDaisKa (Irwin and Irwin 1959), and Magic Mountain (Irwin-Williams and Irwin 1966), has helped to delineate prehistoric occupational sequences in the Hogback area.

Excavations conducted by Leach at the Willowbrook Site defined three main occupational levels, designated both by stratigraphy and cultural content (1966:25). Artifacts affiliated with an Archaic Plains hunting and gathering culture were found at the site, as well as traces of earlier cultures. Materials diagnostic of a later High Plains Woodland culture also were recovered from Willowbrook.

Irwin and Irwin (1959:12) identified five occupational or cultural units at the LoDaisKa Site. These are similar to the cultural levels defined at Willowbrook, but LoDaisKa exhibits a greater temporal span. Evidence of a preceramic Plains hunting and gathering economy also was found at LoDaisKa, representing a variant of the Fremont culture of Utah and western Colorado (Irwin and Irwin 1959:12-15). Nelson (1967:51)

contradicts the Irwins regarding their post Woodland/Fremont postulations, arguing for Shoshonean intrusions from the west.

The Magic Mountain Site, excavated by Irwin-Williams and Irwin, is located on the northern fringe of the Hogback region. The earliest cultural component at the site, the Magic Mountain complex, was non-agricultural and depended on hunting as a subsistence base. This complex is characterized by a different cultural orientation, defined by an adaptation to the mountain environment. The development of subsequent cultural components here show greater influences from outlying cultural areas as indicated by a wider diversity of artifact types.

The chronological sequence of prehistoric occupation in the Foothills region as interpreted by Irwin-Williams and Irwin (1966:219-221) is as follows:

- A Early Paleo-Indian period (circa 10,000-8000 B.C.): This period was marked by a Plains-based bison hunting culture with diagnostic Agate Basin, Scottsbluff, and Frederick projectile points.
- B Magic Mountain complex (8000-3000 B.C.): The probable in situ development of a distinctive localized Archaic culture was evidenced here, with a hunting and gathering economy specific to the flanks of the Rocky Mountains.
- C Incipient horticulture/mixed hunting and gathering (3000-1500 B.C.): Incoming groups from the west and southwest with incipient horticulture replaced the Magic Mountain complex. This intrusion was probably the result of the expansion of Great Basin and Southwest culture areas.
- D Plains-based group (1500-500 B.C.): Hunting predominated during this period; horticultural remains were subsequently non-existent. In the area west of the Hogback, Plains groups began to inhabit rock shelters.
- E Plains group abandonment (500-B.C.-A.D. 700): During this time the rock shelters were abandoned, and the area was inhabited on a limited basis, probably indicating seasonal occupation of the area.

- F Woodland culture (A.D. 700-1000): The area was reoccupied by peoples of the High Plains Woodland culture. Large populations are indicated by massive settlement involving rock shelters and numerous open sites. Agriculture appeared during this time, along with the development of ceramics. At the end of this period there was an apparent hiatus in occupation.
- G. Historic era (A.D. 1700-1800s): During Historic times various tribes frequented the area: the Utes (a mountain tribe), and Comanche, Apache, Arapaho and Cheyenne (Plains tribes) were noted to inhabit the Hogback region (Buckles 1968).

Nelson sees the emergence of a specific cultural complex in the Foothills region in times during which the area was occupied on a seasonal basis. This complex, known as the Hogback phase, appears to characterize the cultural aspects of the region at this time. This phase is marked by seasonally-occupied hunting camps with a Woodland culture affiliation; the dates of this phase are approximately A.D. 600-1000 (1969). The occupied sites are represented by small rock shelters and open sites on prominences. Artifacts exist in the form of Woodland cord-marked pottery and diagnostic corner-notched projectile points (1971:11).

A discussion of previous research, taking into consideration the unique environmental conditions of the area, has been used to develop a model from which prehistoric adaptation can be interpreted.

B. DISCUSSION OF PREVIOUS RESEARCH

Past interpretations of the prehistoric development in the Hogback area have been primarily concerned with defining chronological sequences and cultural affiliations for various sites and occupational zones found in the region (Windmiller and Eddy 1975:105). However, chronological sequences of prehistoric occupations are difficult to define due to the influences diffused from adjacent cultural areas. These cultural influences tend to complicate the correlation of distinct cultural affiliations with occupational components. Artifactual elements such as diagnostic projectile points which are characteristic of neighboring cultural regions also exist within certain occupational components in sites around the Hogback. These influences suggest contact with adjacent cultural regions, but do not necessarily reflect acculturation of the inhabitants, or intrusions of peoples from these other regions. Specifically, some

artifactual elements which appear in the Hogback region may originate from the Desert Culture of the Southwest, the Great Basin, the Plains, and later from Shoshonean peoples (Nelson 1969:51-52; Leach 1966:44).

The earliest inhabitants of the Hogback region were probably representatives of a western expansion of a Plains-based Paleo-Indian culture. Very little is known about this culture through archaeological investigations, other than possible cultural affiliations based on diagnostic projectile points (Irwin-Williams and Irwin 1966:219).

Around 3500 B.C. the first culture evidenced by materials from an excavated context appeared in the region. Irwin-Williams and Irwin applied the name Magic Mountain complex to this artifact assemblage. This complex may have represented in situ development of a unique culture adapting to the Hogback ecotone. Comparisons with artifact assemblages from Archaic cultures adjacent to the Hogback region failed to define any distinct affiliations (Irwin-Williams and Irwin 1966:190). A similar cultural development of an ecotonal environment was recognized for the Bighorn and Powder River Basins in northern Wyoming and southern Montana (Frison 1973). In that region a Paleo-Indian society developed a subsistence system that involved considerable gathering and preparation of vegetal foods. This dependence on gathering distinguishes Frison's Prior-Stemmed complex from the more spectacular Plains Paleo-Indian cultures that occupied the area east of the ecotone (1973:311). Although this development is both temporally and geographically far-removed from Archaic developments around the Hogback, the same general environmental and culturo-marginal conditions existed.

Artifact assemblages from the Archaic sites and occupations around the Hogback suggest a hunting and gathering based economy. For ease in comparison and discussion, these assemblages are summarized in Table 1. Excavations at Van Bibber Creek (Nelson 1969) indicate that small open sites may have been intermittently used by small hunting or gathering parties. Zone 1 at Van Bibber Creek contained predominantly projectile points while Zone B contained a large number of grinding implements. This may be an indication of short term, highly specific activities occurring at small Archaic sites.

Archaic occupations at the LoDaisKa, Willowbrook, and Magic Mountain Sites show a much greater diversity of tool types, suggesting larger occupations involving

SITE	OCCUPATIONAL ZONE	CULTURAL AFFILIATION	Projectile Points	Knives	End Scrapers	Side Scrapers	Manos	Metals	Hammer-stone / Choppers	Drills	n
LoDaisKa	D	Archaic	27%	13%	2%	2%	11%	27%	4%	<1%	394
	C	Archaic	30	5	9	2	9	28	5	1	275
	B	Woodland	31	4	8	3	4	22	3	<1	143
Willowbrook	3	Archaic	38	15	-	4	23	19	-	-	26
	4	Woodland	30	14	-	16	4	12	-	4	51
Van Bibber Creek	C	Archaic	54	-	3	-	9	9	-	-	11
	B	Archaic	22	6	-	4	61	6	-	-	49
	A	Woodland	50	10	4	-	8	2	-	2	52
Half Woodland Cave	Single Occupation	Woodland	53	3	-	-	13	4	4	-	47
	Magic Min. & Apex Complexes	Archaic	28	4	9	22	18	13	4	<1	466
	Woodland	Woodland	29	3	3	6	15	20	10	<1	508
GW. Lindsay	Single Occupation	Woodland	42	8	-	3	-	1	-	-	104

Table 1. Relative percentage of artifacts from sites in the Bear Creek area.



utilization of a greater number of resources. Archaic occupations in general around the Hogback are represented primarily by habitations in rock shelters and open sites, both occurring between the Hogback itself and the Front Range.

During the Archaic period, cultural contact appears to have been generated from the different areas mentioned above. Intersite comparisons of artifact assemblages from sites in the Hogback area show wide differences in tool styles. However, the basic subsistence patterns appear similar (Irwin-Williams and Irwin 1966:198).

Aside from the Magic Mountain complex, other Archaic occupations in the Hogback exhibit affiliations with surrounding cultures. Through comparisons of projectile points, Leach (1966:43-44) concludes that Late Archaic occupations at the Willowbrook rock shelter are associated with the Plains Archaic. The Apex complex at the Magic Mountain Site has been convincingly linked to cultures in the Southwest (1966:220), while Archaic Complex D at LoDaisKa is similar to assemblages from the Great Basin (Irwin-Williams and Irwin 1966:216).

The Woodland period in the Hogback region is marked by a greater diversity in site locations, the introduction of ceramics into the artifact assemblage, and the beginning of mortuary ritualism. While rock shelters and open sites immediately west of the Hogback were occupied during the Archaic period, Woodland occupational patterns expanded from this area to include the habitation of rock shelters and open sites east and west of the Hogback. This expansion by Woodland inhabitants is probably the result of a population increase (Irwin-Williams and Irwin 1966:221).

Examples of sites which indicate this expansion are open sites on the plains east of the Hogback. These sites are characterized as lithic scatters of quartzite debitage with some pottery and grinding tools (Martin 1976). Sites outside the immediate vicinity of the Hogback such as Graeber Cave (Nelson and Graeber 1966), Hall-Woodland Cave (Nelson 1967), and the George W. Lindsay Ranch Site (Nelson 1971) are Woodland, with no artifacts indicating an Archaic occupation.

The function of the open lithic scatter sites east of the Hogback is not clear; they possibly could be temporary stone tool manufacturing stations associated with hunting parties. The function of the sites appearing west of the Hogback is more apparent. These sites were occupied by intermittent hunting and gathering groups as evidenced

by the occurrence of grinding tools and projectile points. In the transition from the Archaic to Woodland periods, it may be assumed that with the introduction of pottery and the increase in population, settlement patterns became more sedentary. However, an examination of the artifact assemblages of the sites in the area reflects no real functional changes occurring during this transition. Only the acquisition of certain cultural traits arising from contact with adjacent cultural regions is suggested.

Implications of a sedentary existence in the Woodland period are difficult to support. At the LoDaisKa Site in the Hogback, maize cobs were found in association with a Woodland occupation, suggesting agriculture (Irwin and Irwin 1959). However, it should be noted that no signs of maize were encountered at any other site in the Hogback region, indicating the maize was probably introduced into this site by contact with maize-growing peoples, and not by an occupation of agriculturists in the area.

Inspection of relative artifact percentages at LoDaisKa, particularly vegetal food preparation tools versus projectile points, indicates that the introduction of maize had little or no effect on the subsistence system. Furthermore, other sites in the area which suggest occupation by agricultural peoples (Irwin-Williams and Irwin 1966) show little change in their relative artifact assemblages over time (Table 1).

Therefore, it appears that although a population increase occurred during the Woodland period, these larger numbers of people were performing the same tasks as their Archaic predecessors. The only major changes were a greater number of occupational locations, the use of pottery, and the occurrence of cemeteries.

After A.D. 1000, the Hogback region experienced an occupational hiatus, reflecting either a lack of prehistoric population or a lack of data pertaining to occupation. No late prehistoric cultures have been exposed or identified, and the paucity of extensive investigation in the area has contributed to the lack of information associated with this hiatus.

By the nineteenth century, tribes of historic Indians were known to frequent this area, dynamically reflecting the nature of the Foothills. Cultural stimulation at this time originated from the High Plains and the Great Basin with contacts from Arapaho and Ute tribes, respectively. Although the characteristics of the conjunction of these two

cultural areas reflect some aspects of each, the cultural aspects of this ecotonal situation remain environmentally distinct (Irwin-Williams and Irwin 1966:221-222).

From the previous discussion it becomes clear that prehistoric settlement in the Hogback region changed very little from approximately 3500 B.C. until the historic period. Eddy and Windmiller note a similar pattern based on the little variability between artifact types from sites of the same or different periods during their survey of the Two Forks Dam and Reservoir (1975:106).

This lack of change around the Hogback and in nearby areas may be explained by environmental conditions. The Hogback ecotone represents an extremely stable environmental situation; consequently, extended droughts would have had relatively little impact on the area. The abrupt changes in elevation characteristic of the Front Range result in major fluctuations in precipitation. Therefore, plants and animals adapt to moist conditions by moving up-slope during arid periods and down-slope when areal precipitation increases. Furthermore, the large numbers of microenvironments present along the flanks of major mountain ranges generally result in an abundance of ecological niches (Frison 1973:311). Plants and animals occupying these niches could have provided a fairly consistent source of food for the aboriginal populations. The variability of the food resources available would provide a hedge against the elimination of any one resource. In other words, there was probably no single plant or animal that the inhabitants would have had to depend upon for a predominant portion of their diet.

VL CONCLUSIONS AND RECOMMENDATIONS

The Bear Creek Flood Control Dam and Recreation Project represents an area where a comprehensive cultural resource study was not performed prior to extensive surface modification, although attempts were made to have studies done by a variety of individuals and agencies. The study area in question was vigorously exploited beginning in the late nineteenth century and surface modifications unrelated to construction of the dam included plowing, quarrying, mining, grazing, and canal construction. All of these activities could have irreversibly damaged evidence of prehistoric occupation.

An overview of archaeological work performed in the vicinity of the study area indicates that sites east of the Hogback are generally surface scatters of lithic debris. This type of site is particularly sensitive to surface disturbance. Therefore, the negative findings of the on-the-ground survey are not surprising.

The study has shown that the unique environmental conditions in the Hogback ecotone may have allowed for intensive human exploitation of this area during Archaic and Woodland times. The study area itself may have contained resources such as grasses, fish, deer, small game, and clay that were used by the aboriginal population. The expanded use of the Hogback region during Woodland times possibly indicates an increasing population and/or a more sedentary life-style. It seems likely that, due to its proximity to the Hogback, the study area would have been exploited most intensively during Woodland times. This conclusion is supported by the occurrence of a Woodland-associated projectile point and end scrapers recovered during a survey for Interstate Highway 470.

The abandonment of the Hogback area following the Woodland period is difficult to explain. An extreme environmental change such as an extended drought has not been recognized in the area. Furthermore, the Hogback ecotone would seem to be an ideal habitational area to live in during a drought, due to the greater rainfall the area would experience relative to the plains. The decreased utilization of the area following the Woodland is highly problematical and warrants further research.

In historic times, groups from both the mountains and the plains frequented the area. The Utes passed through the area on their way to hunt bison on the plains. The Comanche, Apache, Arapaho, and Cheyenne, all Plains tribes, also were recorded around the Hogback.

The historic impact on the area is seen first in the construction of four water supply canals beginning around 1860. Following excavation of the canals, other natural resources in the area were exploited for use in Denver including stone, gravel, clay, coal, and oil. Settlers in the area built homes and raised a variety of farm animals and sold their products in Denver. However, some of the people who built houses in the area did not work there, but commuted to Denver. In this sense, the Bear Creek area was an early suburb.

The canals (Harriman, Warrior, Pioneer Union and Ward) are significant in their role in the historic and economic development of the Bear Creek area. However, in light of the modifications incurred on the canals, and the fact that they do not represent a unique manifestation of the area, they are not eligible for National Register consideration.

The Ticen and Spickerman Houses represent the historic utilization of the area. The Ticen House was on land that contained coal, oil, and clay. The Pioneer Union ditch runs within 10 meters of the house and the house is associated with a dairy that operated in the 1920's. The architectural style used at the Ticen House is highly representative of the area. For these reasons it is recommended that the Ticen House be considered for nomination to the National Register of Historic Places.

The Spickerman House, although also representative of a typical architectural style, has been substantially altered by the addition of an exterior stucco. Furthermore, the history of the house is not particularly representative of developments in the Bear Creek Lake area. Finally, an altered structure, the Rooney Ranch House, built of the same materials as the Spickerman House and located north of the present study area has already been placed on the National Register.

REFERENCES CITED

Buckles, William G.

- 1968 Archaeology in Colorado: historic tribes. Southwestern Lore
34(3):53-67

Clark, S.J.V., P.J. Webber, V. Komarkova, and W.A. Weber

- n.d. Map of mixed prairie grassland vegetation, Rocky Flats, Colorado.
Unpublished manuscript on file at the University of Colorado, INSTAR.

Denver Regional Council of Governments

- 1977 Specification of environmentally significant areas in the Denver
Region. Comprehensive Planning Office, Denver

Fontana, B.L.

- 1965 The tale of a nail: on the ethnological interpretation of historic
artifacts. Florida Anthropologist 18(3):85-102.

Frison, George C.

- 1973 Early period marginal cultural groups in Northern Wyoming. Plains
Anthropologist (62):300-312.

Horton, Renee

- 1980 Taped interview. Transcripts on file at Environment Consultants, Inc.
Dallas.

Irwin, H.J. and C.C. Irwin

- 1959 Excavation at the LoDaisKa Site in the Denver, Colorado area. Denver
Museum of Natural History, Proceedings, No. 8.

Irwin-Williams, Cynthia and H.J. Irwin

- 1966 Excavations at Magic Mountain: a diachronic study of Plains-Southwest
relations. Denver Museum of Natural History, Proceedings, No. 12.

Leach, Larry L.

- 1966 Excavations at Willowbrook: a stratified site near Morrison.
Southwestern Lore 32(2):25-46.

Martin, Curtis W.

- 1976 The archaeological survey of I-470 Southwest Circumferential.
Colorado State Highway Department Project No. I-470-7(001), Highway
Salvage Report 14, Boulder.

Mutel, C.F.

- 1976 From grassland to glacier: an ecology of Boulder County, Colorado.
Land Grant, Boulder.

Nelson, Charles E.

- 1967 Archaeology of Hall-Woodland Cave. Southwestern Lore 33(1):1-13.

Nelson, Charles E.

- 1969 Salvage archaeology on Van Bibber Creek, site 5JF10. Southwestern
Lore 34(4):85-106.

Nelson, Charles E.

- 1971 The George W. Lindsay Ranch Site, 5JF11. Southwestern Lore 37(1):1-
14.

Nelson, Charles E. and Jessie M. Graeber

- 1969 Excavation of Graeber Cave, North Turkey Creek. Southwestern Lore
32(2):17-54.

Odum, E.P.

- 1965 Fundamentals of ecology. W.B. Saunders, Philadelphia.

Patterson, F.A. and B.L. Tipps

- 1978 A cultural resource survey of the Denver Federal Center. Report
submitted to Interagency Archaeological Service-Denver by Cultural
Resources Consultants, Denver.

Renaud, E.B.

- 1931 Archeological survey of eastern Colorado, First Report. The University of Denver.

Renaud, E.B.

- 1933 Archeological survey of eastern Colorado, Third Report. The University of Denver.

Scott, Glen R.

- 1972 Geologic map of the Morrison Quadrangle, Jefferson County, Colorado. U.S. Geological Survey, Washington, D.C.

U.S. Army Corps of Engineers

- 1977 Supplement to the final environmental statement, Bear Creek Lake, Colorado. Omaha.

U.S. Army Corps of Engineers

- 1980 Design Memorandum No. PB-10 (Revised): Master Plan. South Platte River Basin, Bear Creek Lake, Colorado. Omaha.

Van Gorden, J.W.

- 1980 Interview. Notes on file at Environment Consultants, Inc., Dallas.

Windmiller, Ric & F.W. Eddy (assemblers)

- 1975 An archaeological study of aboriginal settlements and land use in the Colorado Foothills. Report submitted to the National Park Service by the University of Colorado.